IV. REMARKS

Preliminary Remarks

Reconsideration and allowance of the present application based on the following remarks are respectfully requested. Claims 20-42 are currently pending. Claims 23-29, 34, and 36-38 have been allowed. Claims 20, 21, 30-33, 35, and 40-42 remain at issue. The applicants respectfully request entry of the amended claims as these amendments place the application in condition for allowance or in the alternative in a better form for appeal.

In paragraph 6 of the official action, the examiner objected to applicants' amendment to the abstract. Specifically, the examiner stated the amended abstract did not describe the entire specification or provide abbreviations to the enzymes. In response, the applicants hereby submit an amended abstract that describes the specification, including the polynucleotides, vectors, host cells, polypeptides and methods of fermentation with the attenuated luxS gene. In addition, the abbreviation for luxS is provided as **lu**minescence expression **s**ensor which is well known in the art. In light of the foregoing amendment, the applicants respectfully submits that the objection to the abstract be withdrawn.

In paragraph 7 of the official action, the examiner maintained her objection of the specification on page 4. Specifically, the examiner has requested an insertion of a section title "Brief Description of the Drawings" and an actual description of Figure 1. The applicants hereby submit insertion of a description of Figure 1 and respectfully request withdrawal of the objection to the specification for informalities to page 4.

In paragraphs 8 and 9, the examiner objected to claim 22 for being directed to a rejected claim, and claim 39 for being substantially a duplicate of claim 38. The applicants hereby submit that claim 22 is now directed to allowable subject matter of amended claims 21 and 22 per the suggestion by the examiner. Furthermore, claim 39 has been cancelled without prejudice and amended claim 38 is now directed to an isolated polynucleotide consisting of at least 30 consecutive nucleotides selected from SEQ ID NO: 1 or the full complement of SEQ ID NO:1. No new matter is believed to have been introduced herein by the foregoing amendment.

The applicants do not intend by these or any amendments to abandon subject matter of the claims as originally filed or later presented, and reserve the right to pursue such subject matter in continuing applications.

The applicants have noted that the Patent Office, in official documents, continues to erroneously refer to the filing date of the present application as August 1, 2001. As the examiner will note on reviewing prosecution file history, the true filing date of the present application is April 4, 2001. The applicants request correction of this error and notification of the same.

Patentability Remarks

Rejection Pursuant to 35 U.S.C. §112, Second Paragraph, Indefiniteness

In paragraph 11 of the official action, the examiner rejected claims 30-32, 35, and 41 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. Specifically, the examiner alleged that the claims were unclear as to how a polynucleotide that hybridizes to SEQ ID NO: 1 (the coding strand) could encode a polypeptide having histidine kinase activity. The Examiner suggested limiting the claim to hybridizing only to the complement of SEQ ID NO: 1.

The applicants hereby submit that amended claim 30 is directed to polynucleotides hybridizing only to the complement of SEQ ID NO: 1. Claims 31, 32, 35, and 41 are ultimately dependent upon claim 30. Accordingly, the applicants request that the rejection of claims 30-32, 35, and 41 under 35 U.S.C. § 112, second paragraph, be withdrawn.

Rejection Pursuant to 35 U.S.C. §112, First Paragraph, Written Description

In paragraph 12 of the official action, the examiner rejected claims 20, 21, 31, 33, and 40 under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. Specifically, the examiner alleged that while the specification may adequately describe the genus of polynucleotides within the % identity range or hybridization conditions claimed, the specification does not adequately describe the *subgenus* of polynucleotides within the range or conditions claimed that are *native to Corynebacterium.*

In contrast, the examiner noted that the subgenus belonging to *C. glutamicum* (Claims 22 and 32) does have adequate written description considering the limited members of the claimed genus. The examiner further asserted that considering the description of all Corynebacterium histidine kinase genes within these structural limitations claimed from within a genus of all histidine kinase genes from any species, no particular description of

coryneform DNA, in general, is found in the specification. The examiner concluded that while clearly such sequences are enabled by virtue of the skill in the art of producing DNA libraries and screening them, the structures of such sequences - in the absence of those not from coryneform - has not been distinguished in the specification as originally filed. To obviate this rejection, the examiner suggested deleting the phrase "native to the genus Corynebacterium" for which the applicants are grateful.

The applicants hereby submit that claims 20 and 21 are now directed to an isolated polynucleotide which is at least 90 or 95% identical to SEQ ID NO: 1, wherein the polynucleotide encodes a protein having the activity of a histidine kinase. In view of the foregoing, the applicants request that the rejection of claims 20, 21, 31, 33, and 40 under 35 U.S.C. § 112, first paragraph, be withdrawn.

Rejection Pursuant to 35 U.S.C. §112, First Paragraph, Enablement

In paragraph 13 of the official action, the examiner rejected claims 30-32, 35, and 41 under 35 U.S.C. § 112, first paragraph, for lack of enablement. Specifically, the examiner alleged that while the specification is enabled for polynucleotides hybridizing under at least, for example, high stringency conditions at 68°C, it does not reasonably provide enablement for polynucleotides hybridizing under such low stringency conditions as 50°C, as claimed. The examiner further asserted that the nature of the invention is such that the DNA encodes a protein product, histidine luminescence expression sensor (luxS) kinase, whose attenuation is useful in the biosynthesis of L-lysine; and with such a great deviation from the known sequence, the predictability of retaining the same functionality becomes extremely low. Moreover, the examiner asserted that the instant claims are drawn to DNA sequences that encode a protein and hybridize to SEQ ID NO:1 under low stringency conditions. The examiner concluded by stating such enormous breadth and unpredictability renders the instant claims not enabled to the full extent of their scope without undue experimentation.

The applicants submit that amended claim 30 is now directed to an isolated polynucleotide which hybridizes under stringent conditions to the full complement SEQ ID NO: 1, wherein said stringent conditions comprise washing in 5x SSC at 68°C and wherein said polynucleotide encodes a protein having the activity of a histidine kinase, which the examiner has acknowledge as enabling by the teachings of the specification. Accordingly, the applicants request that the rejection of claims 30-32, 35, and 41 under 35 U.S.C. § 112, first paragraph, should be withdrawn.

CONCLUSION

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Respectfully submitted,

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